Claims

We claim:

1. An electronic structure comprising:

a substrate having a dielectric layer between a first metal layer and a second metal layer, the second metal layer being disposed above the first metal layer, the first metal layer having a first contact area, the second metal layer having a selected area disposed above the first contact area;

a microvia cavity within the selected area being disposed through the second metal layer and through the dielectric layer and extending to the first contact area of the first metal layer;

a mass of conductive material forming a layer upon the selected area of the second metal layer and being inside the microvia cavity and being in contact with the first contact area of the first metal layer.

2. The structure of claim 1, wherein the mass of conductive material conformally fills the microvia cavity.

3. The structure of claim 1, wherein the mass of conductive material has a planar surface forming a contact pad located parallel to and opposite the first contact area.

4. The structure of claim 1, wherein selected area has approximately the shape of a circular disk approximately centered around the first contact area.

5. The structure of claim 4, wherein the second metal layer within the selected area contains a flat metal ring that is approximately centered around the microvia cavity.

6. The structure of claim 1, wherein the second metal layer within the selected area contains a flat metal ring that is approximately centered around the first contact area.

7. The structure of claim 1, wherein the second metal layer contains a flat copper ring around the microvia cavity.

8. The structure of claim 1, wherein the microvia cavity includes a truncated cone-shaped hole in the dielectric layer.

9. The structure of claim 1, wherein the mass of conductive material comprises at least one of a solder paste, a reflowable solder, a conductive paste, and a conductive adhesive.

10. A method for forming contact pads on a substrate, the method comprising:

providing a substrate including a first metal surface and an external metal foil layer and a layer of dielectric material disposed between the first metal surface and the external metal foil layer;

perforating the external metal foil layer and the dielectric layer to expose a portion of the first metal surface;

selectively depositing a conductive material upon the exposed portion of the first metal surface and upon a peripheral area of the external metal foil layer around the exposed portion of the first metal surface;

etching the external metal foil layer using the selectively deposited conductive material as an etch mask.

11. The method of claim 10 wherein selectively depositing the conductive material includes providing a patterned strippable mask having a screen hole upon a selected area of the external metal layer and screening a conductive paste through the screen hole.

12. The method of claim 11 wherein providing a patterned strippable mask having a screen hole includes depositing a strippable mask layer upon the external metal foil layer and

removing a selected portion of the strippable mask layer from the selected area to form the screen hole.

13. The method of claim 12 wherein removing selected portions of the strippable mask layer to form the screen holes includes laser ablating the selected area.

14. The method of claim 10 wherein perforating the external metal foil layer and perforating the dielectric layer includes:

at least one of laser ablating the first metal foil layer and laser ablating the dielectric layer.

15. The method of claim 10 wherein etching the external metal foil layer further comprises etching an area of the external metal foil layer surrounding the selectively deposited conductive material to produce a planar metal ring formed in the external metal foil layer.

16. The method of claim 10 wherein selectively depositing the conductive material forms a contact pad.

17. The method of claim 10 wherein etching the external metal foil layer includes removing a surrounding area of the external metal foil layer, where the surrounding area is a portion of the

external metal foil layer that is not covered by the selectively deposited conductive material.

18. The method of claim 10 wherein further comprising:

providing a patterned layer of strippable mask to facilitate the selectively depositing of the conductive material.

19. The method of claim 10 wherein the a selected area of the external metal foil layer has a diameter of at least about 2 mils up to about 6 mils.

20. An assembly comprising:

a semiconductor chip having a circuit;

a substrate having a dielectric layer between a first metal layer and a second metal layer, the second metal layer being disposed above the first metal layer, the first metal layer having a first contact area, the second metal layer having a selected area disposed above the first contact area;

a microvia cavity within the selected area being disposed through the second metal layer and through the dielectric layer and extending to the first contact area of the first metal layer;

a mass of conductive material forming a layer upon the selected area of the second metal layer and being inside the microvia cavity and being in contact with the first contact area of the first metal layer;

wherein the circuit is electrically connected to the mass of conductive material.